

City of Galveston  
Department of Planning & Community Development

**HVAC Related Requirements for HVAC Contractors**  
**The following codes have been adopted and amended by City of Galveston**

2012 International Energy Conservation Code  
2012 International Mechanical Code

2012 International Residential Code  
2012 International Fuel Gas Code

There are **MANY** changes in the 2012 Codes as compared to the 2009 codes please consult these codes for all requirements. Important amendments are discussed herein.

*For purposes of this document "NC" means either a new structure or a new mechanical system in an existing structure and Retro means a replacement system*

**SYSTEM DESIGN REQUIREMENTS**

**LOAD CALCULATIONS ARE REQUIRED FOR NEW AND FULL REPLACEMENT SYSTEMS**

IMC 312.1 – **Load Calculations** – (**Commercial**) Heating and cooling system design loads for the purpose of sizing systems, appliances and equipment shall be determined in accordance with the procedures described in the ASHRAE/ACCA standard 183. Alternatively, design loads shall be determined by an approved equivalent computation procedure, using the design parameters specified in Chapter 3 of the International Energy Conservation Code.

IRC M1401.3 – **Sizing** – (**Residential**) – Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or approved heating and cooling calculation methodologies.

**City of Galveston requires Residential load calculations sized in accordance with ACCA Manual S based on loads calculated in accordance with ACCA Manual J based on the requirements shown below for ALL "full system replacements" and ALL new construction. LIKE KIND unit replacement with documentation does not require a Load calculation.**

**Equipment make and models must be clearly shown on the documents along with the ARI rating numbers for the equipment**

**ALL Load calculations that DO NOT comply with the below requirements will be rejected**

Table 303.2  
Exterior Design Conditions

Condition	Value
Winter Design Dry-bulb	36°F
Summer Design Dry-bulb	89°F
Summer Design Wet-bulb	79°F
Degree days heating	1008
Daily temperature range	Low
Grains of Moisture (at 50% RH)	58
Degree days cooling	3268
Climate Zone	2 moist warm humid

**DUCT DESIGNS AND INSALLATION**

Duct systems serving heating, cooling and ventilation equipment shall be fabricated in accordance with the provisions of this section and ACCA Manual D. Please see General Duct Related Requirements for other **"IMPORTANT"** requirements.



MECHANICAL EQUIPMENT INSTALLED IN ATTICS	APPLIES TO
	NC = New Const
Must have a 24" wide <b>unobstructed</b> continuous walkway (3/4" plywood or OSB) leading to equipment from the point of access to the attic. Note that any ducts that will cross the walkway must be provided with a step over or guard to prevent duct damage. 2012 IRC	NC & Retro Ordinance
<b>Minimum attic height</b> is 48" from point of attic access to the equipment and equipment must be within 20' of the opening. If the attic height is a minimum of 6 feet from the point of access to the location of the equipment, the equipment may be located a maximum of 50 feet from the attic access. (2012 IRC and City of Galveston amendment)	NC & Retro Ordinance
Equipment platform must be a minimum of 96" wide and 72" deep not less than 3/4" thick plywood or OSB. The equipment must be installed in a manner to provide a working service on the operator side of NO <b>LESS</b> than 30" in depth. <b>IF ATTIC ACCESS IS NOT PROVIDED AT THE TIME OF ROUGH IN OR IF THE WALKWAY AND PLATFORM IS NOT INSTALLED THE ROUGH IN INSPECTION WILL NOT PASS</b> Passageways and level service space is not required where the appliance is capable of being serviced and removed through the required opening. <i>If utilizing this exception, an 18 inch access space must still be provided to the non-operator side of the equipment, measured from the top rear of the air-handler.</i> (2012 IRC and City of Galveston amendment)	NC & Retro Ordinance
Platforms must be installed at a height that will prevent any compression of insulation that is to be located below the platform. <b>Note; insulation requirement for Galveston is R-35</b> (2012 IECC)	NC & Retro Code
Opening to the attic must be a <b>minimum</b> of 22" wide or large enough to remove the largest piece of equipment installed <b>without disassembly</b> or removal of the staircase. (Attic stairs required see below) (2012 IRC)	NC & Retro Code
Attic disappearing stairs must be rated at 350 lbs and must be installed <b>at time of the rough-in mechanical inspection</b> . (Scuttle holes <b>ARE NOT</b> allowed) Attic access openings must be insulated to the same level as the surrounding attic. (2012 IECC and City of Galveston amendment)	NC & Retro Ordinance
Air Handlers must have a means of disconnect from electricity separate from any breakers located on the equipment. (City of Galveston amendment)	NC & Retro Ordinance
A light fixture and service receptacle outlet shall be located at or near the appliance location.	NC & Retro Code
Fuel fired heaters shall not be located in or obtain combustion air from any of the following spaces; sleeping rooms, bathrooms, toilet rooms, surgical rooms. For exceptions to this rule IMC Section 303.3	NC & Retro
Furnace vent pipe must extend through the roof and have an approved cap. There must be a minimum 5' vertical height and be sized in compliance with the IFGC. (2012 IMC, IRC, IFGC)	NC & Retro
Terminating a "B" vent at a masonry chimney <b>is not allowed</b> (2012 IFGC)	NC & Retro
Air handlers and evaporators to be installed above a secondary drain pan must be installed above the flood level rim of the pan. Supports located inside of the pan to support the appliance or equipment shall be water resistant (no untreated lumber) and <b>approved</b> . (2012 IRC) Code requirement	NC & Retro
There must be a primary and secondary means of condensate disposal. Drain lines <b>MUST NOT</b> be manifolded together. (2012 IRC, IMC and City of Galveston amendment)	NC & Retro
Primary condensate must terminate at a "wet trap", and is a Code requirement	NC & Retro
Primary drain line must be insulated with a minimum of 1/2" insulation (City of Galveston amendment)	NC & Retro
All stud wall cavities utilized for return air <b>MUST BE COMPLETELY AIR TIGHT AND LIMITED TO (1) ONE FLOOR LEVEL</b> (2012 IRC) Code Requirement	NC & Retro
Fuel fired appliance gas valves must be within 6' of the air handler and plainly visible. (2012 IFGC)	NC & Retro
Gas flexible connectors <b>MAY NOT</b> penetrate the air handler cabinet (2012 IFGC)	NC & Retro
<b>All Air Handlers -gas or electric- must have a minimum 18" return air plenum. No flex duct will be on the back of the unit!</b>	NC & Retro

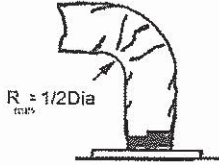
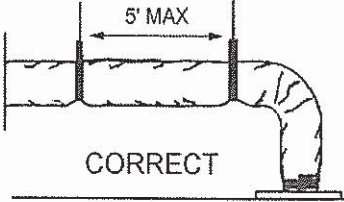

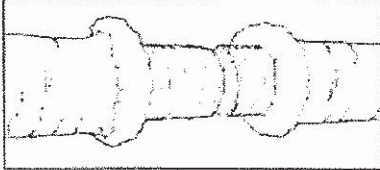


MECHANICAL EQUIPMENT INSTALLED IN CLOSETS/ALCOVES	APPLIES TO
Shall have a minimum working clearance of 6 inches along the sides back of the appliance and a minimum of 8 inches clearance in front of a gas fired appliance. (City of Galveston amendment)	NC
Gas fired appliances <b>shall have at least 8 inches</b> clearance from the appliance door to the backside of the compartment or alcove door. (City of Galveston amendment)	NC
Electric air handlers shall have at least 3 inches clearance from the appliance door to the backside of the compartment or alcove door. (2012 IMC)	NC
Door opening width to closets compartments or alcoves must be a <u>minimum of 36 inches</u> (City of Galveston amendment)	NC
Compartments or alcoves that are open to the attic must have an airtight door insulated to the same level as the walls as well as insulated walls. (2012 IRC)	NC
Air handlers must have a means of electrical disconnect separate from any disconnect located on the air handler. (City of Galveston amendment)	NC & Retro
Gas fired appliances located in closets within the structure <b>must</b> have combustion air piped to the closet. (2012 IFGC) Closet must have an airtight door and be insulated. (2012 Energy Conservation Code.)	NC & Retro

MECHANICAL EQUIPMENT LOCATED ON PLATFORMS	APPLIES TO
1. Equipment and appliances installed on elevated platforms at a height of 8 feet or greater shall be a minimum of 4' deep and 5' wide. Where two or more appliances are to be installed, must maintain a working distance of <u>30"</u> between each piece of equipment to be installed. If platform is to be enclosed, the enclosure must have a 50% net free opening	NC
2. All mechanical equipment installed on buildings or platforms must be attached to the platform/structure to withstand 130 mph 3 second burst and 114 mph sustained winds. <b>THIS MUST BE ACCOMPLISHED USING A MINIMUM ¼" NUT AND BOLT, OR 3/8 DRILL SCREWS LONG ENOUGH TO BE VISABLE FROM GRADE – NO EXCEPTIONS</b>	NC & Retro
3. All mechanical equipment installed at ground level must be secured to a slab weighing 90 or more pounds to withstand 130 mph 3 second burst and 114 mph sustained winds, and resist flotation.	NC & Retro
"ALL" Equipment must be at or above "base flood elevation".	NC & Retro

GENERAL DUCT RELATED REQUIREMENTS	APPLIES TO
All duct systems <b>must have a duct tightness test</b> preformed by a certified third party tester registered with the City of Galveston. See code book for exact requirements. City of Galveston has a list of registered certified testers on file <b>Code Requirement</b>	NC
All replacement duct systems that have ALL ducts accessible <b>must have a duct tightness test</b> preformed by a certified third party tester. City of Galveston has a list of registered certified testers on file	Retro
All ducts must be insulated to R-8 for residential and commercial <b>Code requirement</b>	NC & Retro
Duct register boxes must have all seams sealed with Mastic or UL 181 tape and be insulated to R-8	NC & Retro
Duct register boxes must be sealed at all locations of envelope penetration	NC & Retro
Inner liners on flexible ducts must have mastic or UL 181 tape applied along with a panduit strap. This connection <b>MUST BE VISABLE</b> on the rough inspection or alternatively a duct tightness certificate with a passing status must be presented at the time of inspection.	NC & Retro
All supply duct runs must have a method for air balancing	NC & Retro



installed. (2012 IECC)		
Any flexible duct that possesses a bend greater than that shown in the diagram shown to the right <b>MUST</b> have a metal elbow installed. Manufacturer requirement		NC & Retro
Flexible ducts must be supported at 5' maximum intervals by means of 1 1/2" minimum wide straps, ceiling joists, truss supports or other hanging devices approved by City of Galveston. Connections to rigid duct or equipment shall be considered a support joint. Ducts should be supported such that the "sag" between supports does not exceed 1/2" per foot. Vertical ducts must be supported at a minimum of every 6'.		NC & Retro
Flex duct that <b>IS NOT</b> fully extended <b>WILL NOT PASS INSPECTION. DO NOT</b> install in the compressed state or use excessive lengths. This applies to NC & Retro		
Flexible duct splices must be accomplished utilizing a 4" metal sleeve. This connection must be air sealed using either mastic or UL 181 tape in accordance with the 2012 IECC. Manufacturer Requirement		NC & Retro
Filter grille net free area must equal 144 sq. in. per ton minimum to pass inspection - City Ordinance		NC & Retro
All flexible duct must be installed in a manner that will prevent compression of the duct. - Manufacturer		NC & Retro
All duct register boxes must be supported on a minimum of TWO sides City of Galveston requirement		NC
There must be a minimum of 144 sq. in. of ducted return or chase area per ton of cooling		NC & Retro – City of Galveston requirement
<b>When utilizing flexible duct for the return air;</b>		City of Galveston requirement
a. Duct runs of 25 feet or less must provide 144 sq. in. per ton of installed cooling.		
b. Duct runs exceeding 25 feet but less than 100 feet in length must provide 144 sq. inc. per ton of installed cooling.		NC & Retro
c. Duct runs exceeding 100 feet must meet manufacturer's specifications		
When utilizing sealed chase or metal duct;		
a. Chases/ducts 50 feet or less must provide for a minimum of 144 sq. inc. per ton		NC & Retro
b. Chases/ducts greater than 50 feet must provide for a minimum of 144 sq. inc. per ton		



All listed for this section are code requirements

EXHAUST AND VENTILATION RELATED REQUIREMENTS	APPLIES TO
Exhaust fans must terminate <b>OUTSIDE, NOT</b> at a ridge vent or soffit vent. We recommend that outlets not be placed on the South or South East side of the structure	NC
Any exhaust device (such as a range hood) that exhausts 400 CFM or more must be provided with makeup air interlocked with the exhaust fan – 2012 IRC	NC & Retro
Fresh air inlet openings shall be covered with screens having openings that are not less than ¼” and not greater than ½”	NC
Residential clothes dryer duct must be supported at 4 foot intervals and secured in place	NC & Retro
Dryer exhaust ducts shall not be joined with screws or similar fasteners that protrude into the inside of the duct.	NC & Retro
Where dryer exhaust duct is concealed within the building construction, the equivalent length of the exhaust duct shall be identified on a permanent label or tag. The label or tag shall be located within 6 feet of the exhaust duct connection.	NC & Retro
Where space for a clothes dryer is provided, an exhaust system, shall be installed. Where the clothes dryer is not installed at the time of occupancy, the exhaust shall be capped at the location of the future dryer.	NC
Protective shield plates shall be placed where nails or screws from finish or other work are likely to penetrate the clothes dryer exhaust duct. Shield plates shall be steel and extend a minimum of 2” below top plates and 2” above bottom plates.	NC

All listed for this section are code requirements

CONDENSATE DISPOSAL	APPLIES TO
1. Primary and secondary means of condensate disposal must be installed on horizontal and vertical systems. Primary and secondary lines <b>MUST NOT</b> be interconnected	NC & Retro
2. Rooftop package unit drains must terminate either in the structure sewer lines or into the storm sewer systems. They may not spill onto the roof or gutters that spill onto a parking lot, sidewalk or any other place that would present a nuisance.	NC & Retro
3. Primary drains must be insulated to the point of termination with ½” insulation	NC & Retro
4. Primary drains must terminate at a “wet trap”	NC & Retro
5. If utilizing Green Building Practices, primary drains may terminate outside either at a point of collection or by providing a hose connection on the line.	NC & Retro
6. Drain piping must be no less than ¾ inch internal diameter and may not decrease in size. Drain lines <b>MUST NOT</b> be manifolded together.	NC & Retro
7. Drain pipe materials may be cast iron, galvanized steel, copper, ABC, CPVS or PVC pipe.	NC & Retro
8. All horizontal sections of drain piping shall be installed in uniform alignment at a uniform slope.	NC & Retro

GENERAL REQUIREMENTS	
At least one thermostat per dwelling must be capable of controlling the heating or cooling system on a daily schedule to maintain different temperature set points at different times of the day. This thermostat must include the capability to set back or temporarily operate the system to maintain zone temperatures down to 55°F or up to 85°F. 2012 IECC	NC & Retro
Refrigerant circuit access ports located outdoors at a height of less than 6’ above grade, or not behind a fence shall be fitted with locking type tamper resistant caps.	NC & Retro
Mechanical contractors are required to remove all old equipment they are replacing and all trash/debris created as a result of an installation being accomplished. Failure to do so will result in a Red Tag	Retro
Low pressure (suction lines) must be insulated to a 1-inch level. (with respect to retro only the insulation being replaced is required to be 1-inch.	NC & Retro
Equipment installation instructions must be left on the jobsite – (2012 IMC)	NC & Retro
A/C whips must be installed with the correct fittings on both ends of the whip	NC & Retro

Condensers/Package Units must have a means of electrical disconnect and a receptacle on the same level within sight of the appliance Disconnects may not be attached to the condenser or package unit	NC & Retro
No mechanical equipment or ducts are allowed below Base Flood Elevation	NC & Retro
<b>MECHANICAL EQUIPMENT INSTALLATIONS MUST COMPLY WITH ORDINANCE REQUIREING SET BACKS FROM PROPERTY LINES – GENERALLY SPEAKING THIS SET BACK IS 3' FROM THE PROPERTY LINE.</b>	

PERMITTING GENERAL INFORMATION	
Mechanical permits may be obtained Monday thru Friday between the hours of 8am and 5pm at City Hall, Planning Department counter, or online 24 - 7	
Inspection requests can be made by calling - 409 797 3623	
Inspections require a minimum 24 hour notice	

**Condensing Unit Platform**  
**Section 306.5.3**  
**1 unit= 4' x 5' minimum**  
**2 units= 4' x 10'6" minimum**  
**3 units= 4' x 16' minimum**  
**4 units= 4' x 21'6" minimum**